

## CLAIM(S):

1. A sensor interface assembly for a blood pressure measurement device that determines blood pressure of an underlying artery, the sensor interface assembly comprising:
  - a base unit for pivotally attaching to the blood pressure measurement device;
  - a sensing unit including sensing means for sensing a blood pressure of each pulse as each pulse travels beneath the sensing means; and
  - means for detachably connecting the sensing unit to the base unit wherein the means for detachably connecting mechanically and electrically couple the sensing unit to the base unit.
2. The sensor interface assembly of claim 1 wherein the means for detachably connecting comprises a plurality of electrical connectors connected to the sensing means, the connectors being received by a receptacle of the base unit.
3. The sensor interface assembly of claim 2 wherein the means for detachably connecting further comprises an alignment element for aligning the electrical connectors with the receptacle.
4. The sensor interface assembly of claim 2 wherein the electrical connectors provide power to the sensing unit and receive output signals from the sensing means.

5. The sensor interface assembly of claim 1 wherein the sensing means of the sensing unit includes:

a pressure transducer having a sensing surface for sensing pulses of the underlying artery;

a flexible diaphragm having an active portion for transmitting blood pressure pulses of the underlying artery; and

interface means coupled between the sensing surface of the transducer and the flexible diaphragm for transmitting the blood pressure pulses within the underlying artery from the flexible diaphragm to the sensing surface of the transducer.

6. The sensor interface assembly of claim 1 wherein the base unit further comprises a flexible ring for equalizing pressure around the sensing means.

7. A non-invasive blood pressure measurement device for determining blood pressure of an artery, the device comprising:

a housing unit;

a base unit pivotally coupled to the housing unit, the base unit including electrical circuitry interconnected with the housing unit;

a sensing unit for sensing pulses of the underlying artery, the sensing unit being detachably connected to the base unit.

8. The device of claim 7 wherein the sensing unit includes a plurality of electrical connectors which are received by a receptacle of the base unit to provide both electrical and mechanical connection of the sensing unit to the base unit.

9. The device of claim 8 wherein the sensing unit further includes an alignment element for aligning the electrical connectors with the receptacle.
10. The device of claim 8 wherein the electrical connectors provide power to the sensing unit and receive output signals from the sensing means.
11. A sensor for a non-invasive blood pressure measurement device, the sensor for measuring blood pressure pulses within an underlying artery surrounded by tissue of a patient as the underlying artery is compressed, the sensor comprising:
  - a base unit for coupling to the blood pressure measurement device,
    - the base unit including electrical circuitry, a flexible ring and a connection receptacle; and
  - a sensing unit comprising:
    - a pressure transducer for sensing pulses of the underlying artery, the transducer having a sensing surface;
    - a flexible diaphragm having an active portion for transmitting blood pressure pulses of the underlying artery;
    - interface means coupled between the sensing surface of the transducer and the flexible diaphragm for transmitting the blood pressure pulses within the underlying artery from the flexible diaphragm to the sensing surface of the transducer;
    - a compressible ring; and
    - connecting means for detachably connecting the sensing unit to the receptacle of the base unit.

12. A non-invasive blood pressure measurement device for determining blood pressure of an artery, the device comprising:
  - a housing unit including a receptacle; and
  - a pressure sensor for non-invasively sensing blood pressure pulses in an artery, the pressure sensor being detachably connected to the housing, the pressure sensor including a plug for mechanical and electrical connection to the receptacle.
13. The device of claim 12 wherein the plug further comprises an electrical connector, the connector being received by the receptacle.
14. The device of claim 13 wherein the plug further comprises an alignment element for aligning the electrical connector with the receptacle.
15. The device of claim 12 wherein the pressure sensor comprises:
  - a pressure transducer having a sensing surface for sensing pulses of the underlying artery;
  - a flexible diaphragm having an active portion for transmitting blood pressure pulses of the underlying artery; and
  - interface means coupled between the sensing surface of the transducer and the flexible diaphragm for transmitting the blood pressure pulses within the underlying artery from the flexible diaphragm to the sensing surface of the transducer.
16. The device of claim 15 wherein the interface means comprises a fluid coupling medium.

17. The device of claim 15, and further comprising a compressible side wall surrounding the active portion and conforming to anatomy surrounding the underlying artery.
18. The device of claim 12 wherein the housing unit comprises a flexible ring for equalizing pressure around the pressure sensor.
19. A non-invasive blood pressure measurement device for determining blood pressure of an artery, the device comprising:  
a housing unit;  
a receptacle interconnected with the housing unit; and  
a pressure sensing unit detachably connected to the housing unit,  
the pressure sensing unit comprising a sensor for sensing pulses of the artery and a plug for mechanically and electrically coupling the pressure sensing unit to the receptacle.
20. The device of claim 19 wherein the plug further comprises an electrical connector, the connector being received by the receptacle.
21. The device of claim 20 wherein the plug further comprises an alignment element for aligning the electrical connector with the receptacle.
22. The device of claim 20 wherein the electrical connector provides power to the pressure sensing unit and receives output signals from the sensor.

23. The device of claim 19 wherein the housing unit further comprises a drive assembly connectable to the pressure sensing unit for applying force to cause the sensor to be pressed against the artery.

24. The device of claim 19 wherein the housing unit further comprises electrical circuitry, and further wherein the electrical circuitry receives output signals corresponding to sensed pressure data from the pressure sensing unit and transmits the output signals to a microprocessor where a blood pressure value is derived.